REMARKS

Claims 17-25 are before the Examiner for reconsideration.

In the final rejection, the Examiner rejected claim 25 under 35 USC §102 as anticipated by Gelbart (US 6063546), of record. The Examiner asserted that Gelbart taught a process for making a flexographic printing plate that included all of the steps recited in applicant's claim 25. Applicant disagrees with the Examiner's interpretation of the reference and submits that Gelbart fails to anticipate the claimed subject matter.

Initially, it is apparent that the Examiner has turned Gelbart's process upside down. An embodiment of applicant's process (referencing Fig. 1) as described includes a photopolymer plate (1), source of radiation (6), and a radiation modulation device (halftone film 3) that is configured to have at least one predetermined area that is substantially transparent to the source of radiation and at least one area that is configured to allow the passage of only a portion of the radiation to pass through. As shown in that embodiment, the source of radiation and radiation modulation device are positioned to expose through the *bottom* surface of the photopolymer to cause simultaneous polymerization of a printing relief area (10) and a base relief area (8). Because of the different levels of radiation to which the photopolymer is exposed, the polymerized thickness of the print relief area (10) is greater than the thickness of the base relief area (8). This results in a flexographic printing plate having the typical raised relief printing areas which are inked, but formed in a *single step* as opposed to the typical two-step process used in this art (a first back flash exposure to form a polymerized floor in the plate, followed by an image-wise front exposure to form the raised relief areas).

Gelbart is concerned with achieving proper exposure for a flexographic plate using a mask that contains both "negative areas" (defined by Gelbart as small opaque areas surrounded by large clear areas; col. 1, lines 57-59) and "highlights" (defined by Gelbart as small clear areas in a larger opaque area). Gelbart must prepare his special variable optical density mask using multiple exposure steps in combination with a "pseudo random stochastic screen using single pixel dots" (col. 6, Example 1, lines 20-34).

Gelbart *front* exposes through the upper surface of photopolymer layer 12 through mask 120. Thus, Gelbart does not "position[ing] a radiation modulation device between a source of radiation and said bottom surface of said photopolymer" as claimed. Further, Gelbart's process

does not expose the photopolymer to "simultaneously form a base relief thickness and a printing relief thickness in said photopolymer, said printing relief thickness being greater than said base relief thickness" as claimed. Rather, Gelbart front exposes photopolymer 12 and forms raised relief areas of polymerized photopolymer immediately beneath the clear (120A) and controlled optical density (120C) areas of mask 120. No areas corresponding to the claimed base relief areas are formed *simultaneously* with the formation of print relief areas as claimed.

The Examiner referenced a passage at col. 4, lines 27-30, of Gelbart in support of his assertion that Gelbart did in fact simultaneously form base and print relief areas by polymerizing the photopolymer. However, that passage relates to mask 120, not photopolymer 12, and merely states that the optical density areas 120C in mask 120 "when evenly illuminated by light 23, will properly expose all areas of photo-polymer layer 12." In context, that passage must mean that photopolymer beneath areas 120A and 120C of mask 120 will be exposed and hardened; opaque mask areas 120B must still function to block light from reaching portions of the photopolymer beneath those areas. That interpretation is confirmed by other passages in Gelbart (see, e.g., col. 1, lines 18-33, discussing standard flexo plate making) and by the manner in which the photopolymer is depicted in Fig. 2 (i.e., hardened or non-hardened areas of photopolymer 12 extend all the way to elastomer layer 14). In Fig. 2, areas of photopolymer 12 beneath mask portions 120B are not polymerized or hardened (cross-hatching slanted downwardly to the left), while those areas beneath mask areas 120A and 120C are (cross-hatching slanted downwardly to the right).

Accordingly, Gelbart does not teach each and every element of the process claimed in claim 25. The anticipation rejection is not well taken and should be withdrawn.

In the final rejection, the Examiner maintained his rejection of claims 17-24 under 35 USC §103 as unpatentable over Gelbart (US 6063546) in view of Bratt et al. (US 4229520). The Examiner again asserted that Gelbart taught essentially all of the steps of the claimed process except for exposing the photopolymer from the bottom side of the plate. The Examiner also asserted that Bratt et al. taught a method of forming a relief pattern in which exposure could be "either from the top surface or the bottom surface (column 2 lines, 60-67 and column 10, line 66-column 11, line 16)." The Examiner concluded that it would have been obvious to one skilled in

the art "to modify the method of Gelbart by exposing from the bottom surface in order to form the relief because doing so is an art-recognized suitable method for forming the relief."

Applicant submits that Gelbart fails to teach *all* of the other recited process steps and further submits that the reference teachings cannot be combined in the manner proposed by the Examiner. As described in applicant's specification, one conventional prior art method of forming a flexographic printing plate is to expose a photopolymer to curing radiation from the bottom side to form a cured relief base (typically termed "floor") followed by a second exposure of radiation from the opposite (top) side of the photopolymer to form the printing relief areas. See, applicant's specification at paragraph [0003]. Further, as is also conventional, the relief base or floor does not form an area which is inked for imaging during flexographic printing.

Gelbart, on the other hand, exposes his photopolymer plate through a mask that includes opaque areas (120B), transparent areas (120A), and partially transparent areas (120C). The exposure is from the *top* side of the plate. The photopolymer beneath the opaque areas remains unexposed and presumably is completely washed away during final processing of the plate as is conventional. See, col. 1, lines 18-30 and col. 8, lines 2-3. Applicant understands that the Examiner does not dispute that this is so.

The other areas of the photopolymer which are exposed through the transparent and partially transparent portions of the mask form first and second *image* areas (see, claim 1, which recites "first" and "second" areas "of the image"). Thus, with respect to the process recited in independent claim 17, Gelbart's process does not expose the photopolymer to radiation from the bottom side and does not form a base relief thickness or floor by exposing the photopolymer to radiation. Gelbart's process does not form a relief base area in the photopolymer. As discussed above, photopolymer 12, as depicted in Fig. 2, includes both hardened and non-hardened areas which extend *all the way* to elastomer layer 14). As shown, areas of photopolymer 12 beneath mask portions 120B are not polymerized or hardened (cross-hatching slanted downwardly to the left), while those areas beneath mask areas 120A and 120C are (cross-hatching slanted downwardly to the right). No base relief thickness is formed in photopolymer 12.

Similarly, with respect to independent claim 21, Gelbart does not "simultaneously form a relief base at said bottom surface and a printing relief at said top surface" of the photopolymer as claimed. Further, as with claim 17, Gelbart's process also does not expose the photopolymer to

radiation from the bottom side and also does not form a base relief thickness or floor from photopolymer 12.

The Gelbart and Bratt processes are not combinable in the manner proposed by the Examiner. The Examiner disingenuously asserts that Bratt "teaches a method of forming a relief pattern." (Final Rejection, page 4). What is left unstated is that Bratt has nothing whatsoever to do with making flexographic printing plates. Rather, Bratt is directed to making *masks* which are in turn used to make *lithographic* printing plates. Further, the dimensions of the raised "relief" areas in Bratt's mask are at most 15 *microns* (i.e., 15 x 10^{-6} m). Applicant submits that a person engaged in the manufacture of flexographic printing plates would not look to a reference that taught how to make a mask used in a completely different form of printing. The Examiner broadly asserts that Bratt renders exposing photopolymerizable flexographic printing plates from the bottom surface an "art-recognized suitable method for forming the relief." Bratt does no such thing as Bratt has nothing to do with flexographic printing or with the formation of printing plates having relief imaged surfaces. Even if one were to consult Bratt, which one would not, there would be no expectation of success in applying Bratt's teachings with respect to a mask having raised areas of a thickness of at most 15 microns to the formation of a flexographic printing plate.

It must also be recognized that Gelbart was concerned with the problem of over or under exposure of a photopolymer through a mask, compounded by the problem of light scatter during exposure. See, e.g., col. 3, lines 40-63. Thus, Gelbart taught a specific relationship and geometry for his plate exposure. Completely changing the direction of exposure through the photopolymer would appear to be contra-indicated for several reasons. First, backing layer 16, a necessary element in Gelbart's plate construction, may be opaque to actinic radiation. Gelbart suggests that backing layer 16 may be of "any suitable material" including polyester or metal. Col. 3, lines 22-24. The presence of an opaque backing layer would thwart any attempt to expose photopolymer 12 from its bottom surface.

Next, the design of Gelbart's mask 120 would have to be radically changed. The dimensions of the raised relief image areas on Gelbart's plate are based on *front* exposure of photopolymer 12 through mask 120. Re-positioning mask 120 to the bottom surface of photopolymer 12 and exposing the photopolymer through that surface would, in all probability,

affect the dimensions of the top surfaces of the raised relief areas *on the opposite side* of the photopolymer due to the light scattering problem that Gelbart was attempting to solve. The Examiner has established no facts on this record which would suggest that reversing the direction of radiation through Gelbart's photopolymer layer 12 would accomplish his intended result of a high resolution printed image. Indeed, the evidence of record suggest just the opposite.

Accordingly, applicant submits that one would not expose the bottom surface of Gelbart's plate to radiation through his mask because that would not produce the effect desired by Gelbart. Further, Bratt is not directed to flexographic printing plates and contains nothing which would solve any problem faced by Gelbart. Thus, one skilled in the art of flexographic plate making would not look to Bratt, or, even if Bratt were consulted, would not be motivated to effect radical reconstruction of Gelbart's process.

For all of the above reasons, applicants submit that claims 17-25 are patentable over the cited and applied prior art. Early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

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